

Kay Peters

Essays on

Innovation and Communication

Betriebswirtschaftliche Aspekte lose gekoppelter Systeme und Electronic Business

Herausgegeben von

Prof. Dr. Dr. h.c. Sönke Albers,

Prof. Dr. Birgit Friedl,

Prof. Dr. Achim Walter,

Prof. Dr. Joachim Wolf,

Institut für Betriebswirtschaftslehre,

Christian-Albrechts-Universität zu Kiel

Prof. Dr. Dr. Christian Henning

Institut für Agrarökonomie,

Christian-Albrechts-Universität zu Kiel

Prof. Dr. Udo Konradt,

Institut für Psychologie,

Christian-Albrechts-Universität zu Kiel

In der Schriftenreihe werden Ergebnisse von Forschungsarbeiten veröffentlicht, die sich in herausragender Weise mit Fragen des Managements lose gekoppelter Systeme, virtueller Unternehmen und elektronischer Geschäftsprozesse beschäftigen. Die Reihe richtet sich an Leser in Wissenschaft und Praxis, die Anregungen für die eigene Arbeit und Problemlösungen suchen. Sie ist nicht auf Veröffentlichungen aus den Instituten der Herausgeber beschränkt.

Essays on Innovation and Communication

Inaugural-Dissertation zur Erlangung des Grades eines
Doktors der Wirtschafts- und Sozialwissenschaften der
Wirtschafts- und Sozialwissenschaftlichen Fakultät
der Christian-Albrechts-Universität zu Kiel

vorgelegt von
Dipl.-Kfm. Kay Peters
aus Kiel

Kiel, 2008

Gedruckt mit Genehmigung der
Wirtschafts- und Sozialwissenschaftlichen Fakultät
der Christian-Albrechts-Universität zu Kiel

Dekan: Prof. Dr. Thomas Lux

Erstberichterstattender: Prof. Dr. Dr. h.c. Sönke Albers

Zweitberichterstattender: Prof. Dr. Mark Heitmann

Tag der Abgabe der Arbeit: 19.11.2008

Tag der mündlichen Prüfung: 18.12.2008

Preface

My doctoral thesis has been written within the post graduate program of the German Research Foundation (DFG) on “Business Aspects of Loosely Coupled Systems and Electronic Business”. This program focuses on research related to the diffusion of innovations in the digital age. Accordingly, my research papers collectively represent three connected areas of this program: the diffusion of innovations, eCommerce and Digital Media, and Communication. As ever more innovations are introduced in an increasingly global economy, insights on the influence of marketing policies on the international diffusion of innovations may help to improve their launch. Simultaneously, the diffusion of the internet and mobile devices are changing the way firms and consumers conduct their business. They also expand the range of media through which firms and consumers communicate with each other. It is very exciting to explore and analyze these current developments in a scientific context.

Any dissertation needs the enduring support of a team. Foremost I would like to thank Prof. Dr. Dr. h.c. Sönke Albers for his continuous support throughout my journey. He is an inspiring, encouraging and always constructively engaging mentor. His guidance on and excitement for research led me to discover the great universe of academics. I owe thanks to Prof. Dr. Mark Heitmann for his professional advice, his fast report delivery, and his personal support. I am indebted to Prof. Dr. Sascha Hendrik Mölls for chairing my oral exam. Special thanks are also owed to V. Kumar for his great professional and personal support as part of my “dissertation committee”. I really enjoy our interaction and value our friendship.

Another ‘thank you’ belongs to my co-authors. Prasad A. Naik and Kalyan Raman introduced me to the exciting world of dynamic modeling and optimization. I cherish our personal friendship and the discoveries we pursue together. Björn Schäfers is one of my favorite counterparts in discussing the developments in eCommerce, as both of us have been drawn into this area very early. Sebastian Feld and Heiko Frenzen are dear colleagues from the University of Muenster, with whom I share a long professional and personal relationship.

Special thanks are also owed to our team at the University of Münster. I really enjoy working with Prof. Dr. Manfred Krafft and his team. His professional support and the flexibility he allows me as a family father are outstanding. My division head colleagues at the department, Heiko Frenzen und Oliver Götz, shall be representatively acknowledged here for their respective teams. I am very much indebted to my team at the Center for Interactive Marketing and Media Management (CIM), namely Daniel Asselmann, Doris Bombeck, Sebastian Feld, and Daniel Nießing. Their support and patience as well as their productivity seem inexhaustible. This splendid and productive working environment could not exist without the continuous backing of the marketing faculty at the University of Münster. I am especially indebted to Prof. Dr. Dr. h.c. Klaus Backhaus and Prof. Dr. Dr. h.c. mult. Heribert Meffert and their respective teams - thank you for our inspiring discussions and your support.

The CIM itself is funded by the Deutsche Post AG through its subsidiary, the Siegfried Vögele Institute. With this substantial investment Jürgen Gerdes, Prof. Dr. Jürgen Hesse and Peter Pittgens not only trust our team to lead and implement an independent research agenda. They - like their team - personally engage and support the CIM-team in every need we may have. It is a privilege to work with these people.

To all my colleagues from Kiel and the greater Salty-group: Thank you for a great time, your relentless support, and the famous bets we had. I am very much looking forward to our collaboration!

Finally, my thanks go to my family. As a parent on my own, I know how close parents follow their kids through life. Ich danke Euch, Hella und Uwe - Ihr seid die besten Eltern der Welt! Ebenso meinem Bruder Nils, Dorthé und ihren süßen Kindern sei an dieser Stelle herzlich gedankt. Auch meinen Großeltern, Else, Lotte und Opa Hein danke ich an dieser Stelle noch einmal herzlich für ihre Unterstützung. Gracias a mi familia en Venezuela! Las abuelas Julia y Myrna; mis suegros Edgar, Rosalba, Yamile y Ricardo; mis cuñados Claudia, Vianne, Eduardo y Kaki, para todos Ustedes muchos besos y abrazos. The utmost thanks I owe to my dear wife, Elimay, and my kids Ana Marcella and Diego Alejandro. You are the center of my universe and I am so happy that you allow me to share your life. To you and our families I dedicate this work.

Kay Peters

Content

Synopsis.....	IX
Section A. Research on the Diffusion of Innovations.....	XXIII
A1. Is there more to international Diffusion than Culture? An Investigation on the Role of Marketing and Industry Variables <i>Kay Peters, Sönke Albers and V. Kumar</i>	XXIV
A2. Schätzung von Diffusionsmodellen für den Dienst Btx / Datex-J <i>Sönke Albers and Kay Peters</i>	XXV
Section B. Research on eCommerce & Digital Media.....	XXVII
B1. Die Wertschöpfungskette des Handels im Zeitalter des Electronic Commerce <i>Sönke Albers and Kay Peters</i>	XXVIII
B2. Die Wertschöpfungskette des Handels im Zeitalter des Electronic Commerce - Was eingetreten ist und was dem Handel noch bevorsteht <i>Kay Peters, Sönke Albers and Björn Schäfers</i>	XXIX
Section C. Research on Communication.....	XXX
C1. Heterogeneous Response Functions in Advertising <i>Prasad A. Naik, Kay Peters and Kalyan Raman</i>	XXXI
C2. Die Optimierung der Öffnungsquote von Direct-Mailings - eine empirische Studie am Beispiel von Finanzdienstleistern <i>Kay Peters, Heiko Frenzen and Sebastian Feld</i>	XXXII

Synopsis

1 Introduction

The presented research has been generated through extensive and collaborative work at the Graduiertenkolleg (postgraduate research program) on „Business Aspects of Loosely Coupled Systems and Electronic Business“. The research papers collectively represent three different --- albeit connected --- areas of this program:

- Research on the Diffusion of Innovations
- Research on eCommerce & Digital Media
- Research on Communication

Following, I will present the contributions to each of these research areas and illustrate their interdependencies. A brief summary on each paper highlights its conceptual, empirical or methodological contribution (cf. table 1). I conclude the synopsis with a brief summary.

Table 1: Overview on Working Papers and Publications (1)

Title	Authors / Source
A. Research on the Diffusion of Innovations	
A1. Is there more to international Diffusion than Culture? An Investigation on the Role of Marketing and Industry Variables	Kay Peters, Sönke Albers and V. Kumar [Working Paper. 2008. University of Kiel, Germany]
A2. Schätzung von Diffusionsmodellen für den Dienst Btx / Datex-J [Estimation of Diffusion Models for Online Services: The Case of Btx & Datex-J]	Sönke Albers and Kay Peters [in: Die Diffusion von Innovationen in der Telekommunikation. M.-W. Stoetzer, A. Mahler (eds.). Springer, Berlin et al. 167-193.]
B. Research on eCommerce & Digital Media	
B1. Die Wertschöpfungskette des Handels im Zeitalter des Electronic Commerce [The Value Chain of Retailing in the Times of Electronic Commerce]	Sönke Albers and Kay Peters [Marketing - Zeitschrift für Forschung und Praxis. 19 (1997) 69-80]
B2. Die Wertschöpfungskette des Handels im Zeitalter des Electronic Commerce - Was eingetreten ist und was dem Handel noch bevorsteht [The Value Chain of Retailing in the Times of Electronic Commerce - An Analysis of Recent Developments and new Challenges ahead]	Kay Peters, Sönke Albers and Björn Schäfers [Working Paper. 2008. University of Kiel; Marketing - Zeitschrift für Forschung und Praxis, 2 nd round]

Table 1: Overview on Working Papers and Publications (2)

Title	Authors / Source
<i>C. Research on Communication</i>	
C1. Heterogeneous Response Functions in Advertising	Prasad A. Naik, Kay Peters and Kalyan Raman [Working Paper. 2008. University of Muenster, Germany]
C2. Die Optimierung der Öffnungsquote von Direct-Mailings - eine empirische Studie am Beispiel von Finanzdienstleistern [Optimizing the Opening Rates of Direct Mails - an Empirical Analysis on Financial Services]	Kay Peters, Heiko Frenzen and Sebastian Feld [Zeitschrift für Betriebswirtschaft. Special Issue. 3/2007 143-176]

2 Research Contributions

The six research contributions are evenly spread across the three research areas. Before illustrating their interrelatedness, I briefly describe each of the research areas and the papers assigned to them. The core area, on “Diffusion of Innovations”, represents the point of departure, followed by the related research on the development of “eCommerce & Digital Media” and the third research section on “Communication”. A brief summary across all areas highlights their interdependencies.

2.1 Research on the Diffusion of Innovations

The Diffusion of Innovations has been of great interest to researchers and practitioners ever since, as the introduction of new products into markets constitutes a core activity of companies (e.g., Bass 1969, Mahajan et al. 1990, Rogers 2003, p. 39f.). Rogers (2003, p. 5) defines diffusion as “the process in which an innovation is communicated through certain channels over time among the members of a social system”. Lately, two major issues have been of increasing interest with respect to the analysis of diffusion processes.

First, new communication channels like cellularity and the internet are changing the way people --- or (potential) adopters --- communicate on every aspect of life, from personal affairs to spreading the word-of-mouth on new innovations (e.g., Rogers 2003, pp. 258f. and 346f.). Hence, it is of great importance to understand two issues involved: the diffusion of these communication channels itself and the way their usage influences consumer behavior. Both of these developments may have substantial repercussions for the way future business is conducted. In this subsection, the focus is on the diffusion process of these new communication technologies.

Second, in an ever more connected world, diffusion processes of innovations are increasingly international (e.g., Talukdar et al. 2002). In marketing, many studies have been conducted to shed light on the drivers of international diffusion processes in order to help companies decide on entry and marketing strategies. However, generally the differential patterns of diffusion processes across countries have been linked to exogenous drivers like population characteristics, economic differences, culture and other macro- or socioeconomic drivers (e.g., Dekimpe et al. 2000, Kumar 2003). As managers cannot influence these drivers, their choice on entry strategies, i.e., choosing a waterfall or sprinkler strategy, would be “reactive” to these country characteristics. But are people really so different after all (e.g., Farley and Lehmann 1994)? What is the role of the marketing-mix in international diffusion processes?

To address both issues, the international diffusion process of cellars is investigated (cf. section A1: *Is there more to international Diffusion than Culture? An investigation on the Role of Marketing and Industry Variables*). The authors systematically compare the influence of the most prominent drivers from the literature with that of industry and marketing-mix variables. Our results indicate that industry and marketing-mix variables prevail in shaping the differential diffusion patterns of cellars across countries. This empirical finding extends insights from national diffusion research (e.g., Mahajan et al. 1990, Bass et al. 1994) to the international level. It is good news to marketers, because this finding underlines that they can influence international and local diffusion patterns substantially. The result also implies that both, the international roll-out and the local marketing strategy decision, seem to be highly interdependent. With respect to methodology, the paper proposes a parsimonious model that accommodates several cross-country effects investigated in the literature. Simultaneously, the model allows for the inclusion of various drivers of the local market potential as well as diffusion speed. Additionally, the concept of Moran’s I is introduced to international diffusion modeling for testing on the presence of spatial autocorrelation (e.g., Moran 1950, Bronnenberg and Mahajan 2001). Spatial autocorrelation may induce bias in parameter estimates, which may consequently lead to wrong decisions

(e.g., Dekimpe et al. 2000). Moran's I presents an alternative to specifying spatial dependence in the error term (e.g., Albuquerque et al. 2007) when the neighborhood matrix is only sparsely populated, thus inhibiting its inversion. For cellulars, the authors find that specifying the lead-lag effect and the spatial neighborhood effect may reduce spatial autocorrelation to a large extent.

As the first paper focuses on the diffusion of cellulars, the second paper analyzes the early diffusion of the other new innovative communication channel: the online or Internet access services in Germany from 1982-1994 (cf. section A2: *Schätzung von Diffusionsmodellen für den Dienst Btx / Datex-J [Estimation of Diffusion Models for Online Services: The Case of Btx & Datex-J]*). The analysis confirms the importance of marketing-mix instruments for the diffusion of internet access services. As for the international diffusion of cellulars, the price level determines the market potential to a large extent, while advertising drives diffusion speed. The results --- early in the diffusion process --- also indicate that future growth potential may come to a large extent from future product improvements, like bandwidth and content services, rather than from further price cuts or increased advertising.

Taken together, both studies support the presumption that the diffusion of innovative communication channels, nationally and internationally, is driven to a large extent through marketing-mix instruments. These findings not only underline the general importance of marketing in the (international) diffusion process of innovations, but specifically demonstrate that the fascinating future digital and mobile world of communication may adhere to the classic parameters of marketing. In the next section, I follow up on the second issue raised above: how does their usage, in particular of internet services, change the way consumers behave and what implications does that have for the way business may be conducted in future?

2.2 Research on eCommerce and Digital Media

From both new communication technologies, especially the Internet developed beyond a pure mean of communication (e.g., Albers 2001). As an interactive digital medium, its intrinsic characteristics lead to lower transactions costs for businesses and consumers alike (e.g., Bakos 1995). How does that effect the strategic position of businesses? For instance, especially retailers lend their very existence to a large extent on lowering transaction costs for manufacturers and consumers (e.g., Picot 1986). Accordingly, it finds itself at the forefront of business transformation induced by the Internet, i.e., eCommerce. The third paper analyzes the strategic value chain of retailing and its potential transformations through the advent of eCommerce (cf. section B1: *Die Wertschöpfungskette des Handels im Zeitalter des Electronic Commerce [The Value Chain of Retailing in the Times of Electronic Commerce]*).

In the paper, the authors begin with a compilation of the value chain of retailing, which comprises five elements: physical distribution, assortment, information collection/evaluation/distribution, financial transactions, and associated services. In a second step, they structure the intrinsic characteristics of the Internet and their potential consequences on business processes. They find that the Internet may lead (a) to an increased ubiquity of offerings, i.e., being available anywhere and anytime, (b) to an increased variety of offerings dependent on their degree of digitization (anyhow), (c) to an increased mediatization of information aspects of transactions, and (d) to lower transactions costs as information aspects represent a substantial part of transaction costs. Taken together, these induced changes may result in a debundling of formerly integrated business processes in combination with an increasingly global competition. Following, the authors analyze each element of the value chain of retailing with respect to potential changes driven by a more intensive usage of the Internet. Our results indicate that retailers are facing hard challenges on many fronts along their value chain, brought upon them as well by global specialists as internet startups alike. In par-

ticular, their core elements on assortments and information handling are threatened by an increasing usage of the Internet. Based on their assessments, the authors close with an illustration of remaining strategic options for retailers, e.g., adopting the role of a coordinator across the value chain.

Since the previous paper, which focuses on the supply side effects in retailing, some years have passed by. Accordingly, the fourth paper constitutes an assessment on changes that actually materialized as well as an extension to the demand side effects of eCommerce on retailing (cf. section B2: Die Wertschöpfungskette des Handels im Zeitalter des Electronic Commerce - Was eingetreten ist und was dem Handel noch bevorsteht [*The Value Chain of Retailing in the Times of Electronic Commerce - An Analysis of Recent Developments and new Challenges ahead*]). The authors find that debundling of business processes indeed occurred. Ahead of expectations, new infomediaries support consumer decision making along their buying process, e.g., from simple quality assessments, price comparison, to Consumer-to-Consumer recommendations via social networks. New technologies and applications --- online and mobile --- as well as a resulting change in consumer behavior reinforce these developments. Extrapolating this evolution, not only will retailers face even harder challenges in the near future. Also currently dominating infomediaries as well as online and multi-channel retailers will be effected.

Summarizing, the papers in this subsection complement the quantitative diffusion picture of new communication channels above. They illustrate how the diffusion of innovative communication channels may ultimately transform the way business is conducted. The findings underline that the (international) diffusion of these communication technologies has substantial repercussions on daily life, for consumers as well as businesses. Combined, the Internet and mobile access devices like cellulares provide consumers with potentially unlimited, ubiquitous multi-media communication. In this complex multi-media environment, a major issue for marketers is how they should use

each medium to optimize their return on investment on advertising spending. I address this issue in the next subsection on communication.

2.3 Research on Communication

The diffusion of new communication technologies extends the variety of advertising media, each of them featuring particular characteristics. Besides the rise of new interactive media, classic media like TV and radio undergo a transformation in usage patterns, changing their advertising effectiveness. Looking for alternatives to assure the reach of their advertising messages, marketers turn to alternative media, e.g., billboards, and, in the context of Customer Relationship Management (CRM), to below-the-line media like direct mails. Given this variety in advertising media and the complex dynamics of advertising effectiveness, a major strategic issue is an appropriate dynamic budget allocation across a given media set. The fifth paper addresses this issue (cf. section C1: *Heterogeneous Response Functions in Advertising*):

Advertising effects are diverse and dynamic by nature (e.g., Dekimpe and Hanssens 2007, Naik 2007). In order to improve one's budget allocation across a given set of advertising media, current approaches account for selected dynamic advertising effects like varying carryovers by media (e.g., Montgomery and Silk 1972) or varying advertising effectiveness (e.g., Jagpal 1981). With respect to diminishing returns, most studies either (a) combine this effect with advertising effectiveness, e.g., by specifying elasticities (e.g., Hanssens and Levin 1983), (b) do not specify this effect (e.g., Bhargava and Donthu 1999), or (c) apply square root or logarithmic pattern for the sake of model parsimony (e.g., Naik and Raman 2003). In contrast, already DeFleur (1956) suggests that diminishing returns may vary by media according to their differential characteristics. Furthermore, also managers claim in discussions that diminishing returns are not equal across media. But if they indeed vary across media, how does that affect the resulting media budget allocation? Accordingly, there is a need for a systematic approach to validate this claim. To separate the different effects, the authors (cf.

section C1) develop a dynamic model that captures differential diminishing returns across media and disentangles this effect from differential carryovers and varying advertising effectiveness. Second, they develop a systematic method to estimate the model parameters and show empirically, that all these effects indeed vary across media. Third, accounting for varying media buying efficiencies, they investigate the normative implications for managerial budget allocation decisions. This new approach should enable managers to allocate their advertising budgets more effectively in the challenging multi-media environments.

After media selection and budget allocation, the operational implementation of message communication is another important issue. Today, companies increasingly implement CRM to address their customers individually (e.g., Krafft 2007, p. 1f., Kumar 2008, p.113f., Reinartz et al. 2004). To address customers individually, most companies employ new media like emails or traditional ones like direct mail. The advent of new media increases the pressure on classic media to improve their effectiveness, e.g., through better targeting, better timing or better design. Industry sources claim that the design of direct mails contributes as much as 10-20% to its success (e.g., Roberts and Berger 1999, p. 7), although this has not been validated empirically before. The sixth paper addresses this issue and empirically investigates the contribution of design elements on the opening rate of direct mails (cf. section C2: *Die Optimierung der Öffnungsquote von Direct-Mailings - eine empirische Studie am Beispiel von Finanzdienstleistern [Optimizing the opening rates of direct mails]*):

Several managerial textbooks on direct marketing claim the contribution of design elements to the success of direct mails and recommend certain design specifications (e.g., Roberts and Berger 1999). However, only a few academic studies investigate the effect of selected design items for direct mails. The authors (cf. section C2) conduct a first comprehensive study on the design items of the envelope, which influence the probability of opening a direct mail piece substantially. The opening of a direct mail itself constitutes a necessary condition for the success of a mailing. They

show how commercially available panel data can be systematically compiled, analyzed and demonstrate how those results can be used to optimize the design of direct mails. They illustrate their approach for the financial services sector across more than 400 campaigns. The results indicate that the investigated characteristics explain approximately 13% of the variance on opening rates, supporting the presumption of managers stated above. Furthermore, managers can substantially increase their opening rates of direct mails by applying particular design effects.

2.4 Summary

Together, the six papers address a range of important issues on innovation and communication. As the first two contributions are concerned with the quantitative (international) diffusion of new communication channels and its marketing-related drivers, the next two papers illustrate the changes they induce on businesses and consumers alike. Finally, the last two papers are concerned with optimizing media employment for commercial communication. While the fifth paper addresses the strategic issue on how to optimize advertising budgets in dynamic multi-media environments, the sixth paper addresses an operational optimization issue for direct mails in the important context of individual CRM media.

3 Manifestations on co-authorships

All six working papers and publications reflect substantial contributions as a co-author. Equal contributions by all co-authors are acknowledged for

- „Schätzung von Diffusionsmodellen für den Dienst Btx / Datex-J“ [section A2],
- „Die Wertschöpfungskette des Handels im Zeitalter des Electronic Commerce“ [B1],
- „Heterogeneous Response Functions in Advertising“ [C1], und
- „Die Optimierung der Öffnungsquote von Direct-Mailings - eine empirische Studie am Beispiel von Finanzdienstleistern“ [C2].

With respect to the following working papers co-authors are listed according to contribution:

- „Is there more to international Diffusion than Culture? An investigation on the Role of Marketing and Industry Variables“ [A1],
- „Die Wertschöpfungskette des Handels im Zeitalter des Electronic Commerce - Was eingetreten ist und was dem Handel noch bevorsteht“ [B2].

4 References

- Albers, S. 2001. Besonderheiten des Marketing mit interaktiven Medien. *Marketing mit Interaktiven Medien*. S. Albers, M. Clement, K. Peters, B. Skiera (eds.). 3rd ed. FAZ-Institut, Frankfurt am Main, Germany.
- Albers, S., K. Peters. 1995. *Schätzung von Diffusionsmodellen für den Dienst Btx / Datex-J*. Die Diffusion von Innovationen in der Telekommunikation. M.-W. Stoetzer, A. Mahler (eds.). Springer, Berlin et al. 167-193.
- Albers, S., K. Peters. 1997. Die Wertschöpfungskette des Handels im Zeitalter des Electronic Commerce. *Marketing - Zeitschrift für Forschung und Praxis*. **19** 69-80.
- Albuquerque, P., B.J. Bronnenberg, C.J. Corbett. 2007. A spatiotemporal analysis of the global diffusion of ISO 9000 and ISO 14000 certifications. *Management Science*. **53**(3) 451-468.
- Bakos, J.Y. 1995. Reducing buyer search costs: implications for electronic market-places. *Management Science*. **43**(12) 1676-1692.
- Bass, F.M. 1969. A new product growth model for consumer durables. *Management Science*. **15**(5) 215-227.
- Bass, F.M., T.V. Krishnan, D.C. Jain. 1994. Why the Bass model fits without decision variables. *Marketing Science*. **13**(3) 203-223.
- Bhargava, M., N. Donthu. 1999. Sales response to outdoor advertising. *Journal of Advertising Research*. **39**(4) 7-18.
- Bronnenberg, B., V. Mahajan. 2001. Unobserved retailer behavior in multimarket data: joint spatial dependence in market shares and promotion variables. *Marketing Science*. **20**(3) 284-299.
- De Fleur, M.L. 1956. A mass communication model of stimulus response relationships: An experiment in leaflet message diffusion. *Sociometry*. **19**(1) 12-25.
- Dekimpe, M.G., D.M. Hanssens. 2007. Advertising response models. *Handbook of Advertising*. G.J. Tellis, T. Ambler (eds.). Sage, London, UK. 247-263.

- Dekimpe, M.G., P.M. Parker, M. Sarvary. 2000. Multimarket and global diffusion. *New product diffusion models*. Mahajan, V., E. Muller, Y. Wind (eds.). Kluwer Academic Publishers, Norwell, MA. 58-73.
- Farley, J.U., D.R. Lehmann. 1994. Cross-national "laws" and differences in market response. *Management Science*. **40**(1) 111-122.
- Hanssens, D.M., H.A. Levien. 1983. An econometric study of recruitment marketing in the U.S. Navy. *Management Science*. **29**(10) 1167-1184.
- Jagpal, H.S. 1981. Measuring joint advertising effects in multiproduct firms. *Journal of Advertising Research*. **21**(1) 65-69.
- Krafft, M. 2007. *Kundenbindung und Kundenwert*. 2nd ed. Physica-Verlag, Heidelberg.
- Kumar, V. 2003. Global diffusion models: back to the future. *Handbook of Research in International Marketing*. S.C. Jain (ed.). Edward Elgar Publishing, Northampton, MA. 379-401.
- Kumar, V. 2008. *Managing customers for profit*. Pearson Education, Upper Saddle River, NJ.
- Mahajan, V., E. Muller, F.M. Bass. 1990. New product diffusion models in marketing: a review and directions for research. *Journal of Marketing*. **54**(1) 1-26.
- Montgomery, D.B., A.J. Silk. 1972. Estimating dynamic effects of market communications expenditures. *Management Science*. **18**(10) B485-B501.
- Moran, P. 1950. A test for the serial independence of residuals. *Biometrika*. **37** 17-23.
- Naik, P.A. 2007. Integrated marketing communications: provenance, practice and principles. *Handbook of Advertising*. G.J. Tellis, T. Ambler (eds.). Sage, London, UK. 35-53.
- Naik, P.A., K. Peters, K. Raman. 2008. *Heterogeneous Response Functions in Advertising*. Working Paper. University of Muenster, Germany.
- Naik, P.A., K. Raman. 2003. Understanding the impact of synergy in multimedia communications. *Journal of Marketing Research*. **40**(4) 375-388.
- Peters, K., S. Albers, V. Kumar. 2008. *Is there more to international Diffusion than Culture? An investigation on the Role of Marketing and Industry Variables*. Working Paper. University of Kiel, Germany
- Peters, K., S. Albers, B. Schäfers. 2008. *Die Wertschöpfungskette des Handels im Zeitalter des Electronic Commerce - Was eingetreten ist und was dem Handel noch bevorsteht*. Working Paper. University of Kiel, Germany.
- Peters, K., H. Frenzen, S. Feld. 2007. *Die Optimierung der Öffnungsquote von Direct-Mailings - eine empirische Studie am Beispiel von Finanzdienstleistern*. Zeitschrift für Betriebswirtschaft. Special Issue. 3/2007 143-176.
- Picot, A. 1986. Transaktionskosten im Handel. Zur Notwendigkeit einer flexiblen Strukturentwicklung in der Distribution. *Betriebs-Berater*, **27**(13) 2-16.

- Reinartz, W., M. Krafft, W.D. Hoyer. 2004. The customer relationship management process: its measurement and impact on performance. *Journal of Marketing Research*. **41**(3) 293-305.
- Roberts, M.L./Berger, P.D. (1999): *Direct marketing management*. 2nd ed. Prentice Hall, Upper Saddle River, New Jersey.
- Rogers, E.M. 2003. *Diffusion of Innovations*, 5th ed. Free Press, New York et al.
- Talukdar, D., K. Sudhir, A. Ainslie. 2002. Investigating new product diffusion across products and countries. *Marketing Science*. **21**(1) 97-114.

Section A. Research on the Diffusion of Innovations

Paper A1.

Peters, K., S. Albers, V. Kumar. 2008. *Is there more to international Diffusion than Culture? An investigation on the Role of Marketing and Industry Variables*. Working Paper. University of Kiel, Germany.

Available at: <http://opus.zbw-kiel.de/volltexte/2008/7458/>

Abstract

Companies employ international diffusion models to assess the local market potential and local diffusion speed to support their decision making on market entry. After their entry into a country, they use the model forecasts for their performance controlling. To this end, empirical applications of international diffusion models aim to link differential diffusion patterns across countries to various exogenous drivers. In the literature, macro- and socioeconomic variables like population characteristics, culture, economic development, etc. have been linked to differential penetration developments across countries. But as companies cannot influence these drivers, their marketing decisions that shape national diffusion patterns are ignored. Is this reasonable? What then, is the role of marketing instruments in an international diffusion context? We address this issue and compare the influence of these prominent exogenous drivers of international diffusion with that of industry and marketing-mix variables. To account for all of these factors and simultaneously accommodate the influence of varying cross-country interactions, we develop a more flexible yet parsimonious model of international diffusion. Finally, to avoid technical issues in implementing spatially dependent error terms we introduce the test concept of Moran's I to international diffusion model. We demonstrate that the lead-lag effect in conjunction with spatial neighborhood effects controls most of the spatial autocorrelation. Using this combined approach we find that --- for cellulars --- industry and marketing-mix variables explain international diffusion patterns better than macro- and socioeconomic drivers.

Keywords: International Diffusion, Marketing-Mix, Spatial Dependence

Paper A2.

Albers, S., K. Peters. 1995. Schätzung von Diffusionsmodellen für den Dienst Btx / Datex-J. *Die Diffusion von Innovationen in der Telekommunikation*. M.-W. Stoetzer, A. Mahler (eds.). Springer, Berlin et al. 167-193.

[Estimation of Diffusion Models for Online Services: The Case of Btx & Datex-J]

Abstract

The first online access service has been introduced into the German market in 1982. Since then many studies forecast its penetration, generally substantially overestimating the actual number of adopters. The relaunch of the service and its new marketing approach warrant a new attempt to forecast its future development. Additionally, academics recently engage in a discussion on the proper specification of diffusion models and the accommodation of marketing variables. We investigate the influence of marketing variables on the diffusion process in the context of this service. We find that a careful specification of the market potential is the key to a reasonable performance of diffusion models. Pricing seems to influence the market potential while advertising enhances diffusion speed for this service. For the future, improvements in product features seems the most promising route to higher penetration rates.

Zusammenfassung

Der Dienst Bildschirmtext wird seit 1982 angeboten. Die Penetration dieses Dienstes ist seit dem Beginn der Pilotphase mehrfach prognostiziert worden. Aus den ersten Anwendungen der Diffusionsmodelle resultieren z.T. extreme überhöhte Schätzungen der Nutzerentwicklungen. Mit der Neukonzeptionierung des Dienstes und des Marketing-Ansatzes scheint eine neue Analyse geboten. Zudem ist in den letzten Jahren eine intensive Diskussion über die adäquate Spezifikation der Diffusionsmodelle geführt worden. Vor allem die Ansichten über zu berücksichtigende Variablen gehen auseinander. Dieser Beitrag untersucht systematisch den Einfluss von Marketing-Variablen auf die Diffusion des Dienstes Datex-J. Dabei stellt sich heraus, dass eine gut durchdachte Spezifikation des Marktpotentials besonders wichtig ist, wobei dieses hier insbesondere vom Preis abhängig erscheint. Die Werbemaßnahmen scheinen hingegen eher auf die Diffusionsgeschwindigkeit zu wirken. Die größten Entwicklungspotenziale liegen zukünftig wohl vor allem in einer Verbesserung der Produkteigenschaften.

Keywords: Online Service, Diffusion, Marketing-Mix

Section B. Research on eCommerce & Digital Media

Paper B1.

Albers, S., K. Peters. 1997. Die Wertschöpfungskette des Handels im Zeitalter des Electronic Commerce. *Marketing - Zeitschrift für Forschung und Praxis*. **19** 69-80.

[The Value Chain of Retailing in the Times of Electronic Commerce]

Abstract

In the USA the share of retail sales through Electronic Shopping (WWW) is increasing dramatically. If this trend picks up in Germany soon, one may expect significant structural changes in the retail sector here, too. Due to the low transaction costs in the Electronic Commerce environment the traditional functions of retailing - physical distribution, assortment, informing and consulting the consumer as well as financial transaction function - may be no longer offered bundled only. We show how external players from other economic sectors can provide many of those functions as specialists of information processing better and cheaper. We conclude with some remaining strategic options for traditional retailers.

Zusammenfassung

In den USA wird ein stark ansteigender Teil der Handelsumsätze im Wege des Electronic Shopping von Konsumenten über das World Wide Web abgewickelt. Folgt die Entwicklung in Deutschland diesem Trend, so sind nachhaltige Strukturveränderungen für Handelsunternehmen zu erwarten. Aufgrund der geringen Transaktionskosten können die traditionellen Handelsfunktionen der physischen Distribution, der Sortimentsgestaltung, der Information und Beratung des Kunden und des Inkassos entbündelt angeboten werden. Es wird gezeigt, wie branchenfremde Marktakteure als Spezialisten bestimmter Informationsverarbeitungsfunktionen die Leistungen kostengünstiger und besser erbringen können. Aufbauend darauf werden verbleibende strategische Optionen für den Handel diskutiert.

Keywords: eCommerce, Retailing, Strategy, Multichannel, Value Chain

Paper B2.

Peters, K., S. Albers, B. Schäfers. 2008. *Die Wertschöpfungskette des Handels im Zeitalter des Electronic Commerce - Was eingetreten ist und was dem Handel noch bevorsteht*. Working Paper. University of Kiel, Germany.

Available at: <http://opus.zbw-kiel.de/volltexte/2008/7457/>

Under Review at: *Marketing - Zeitschrift für Forschung und Praxis*, 2nd round.

[The Value Chain of Retailing in the Times of Electronic Commerce - An Analysis of Recent Developments and new Challenges ahead]

Abstract

Ten years ago Albers/Peters (1997) analyzed the impact of eCommerce on the retail value chain. Since then major change has taken place. Apart from the expected unbundling of several retail activities along the value chain, especially the consumer buying process has been taken online and increasingly supported by new infomediaries. Those new infomediaries have taken the retailer's traditional ground. New technologies, applications and a changing consumer behavior will confront today's market players, infomediaries as well as offline-, online- and multichannel retailers, with even bigger challenges.

Zusammenfassung

Vor zehn Jahren untersuchten Albers/Peters (1997) die Einflüsse des eCommerce auf die Wertschöpfungskette im Handel. Seit dieser Zeit ist die Entwicklung weiter vorangeschritten. Neben der erwarteten Entbündelung von Handelsaktivitäten wurde seitdem vor allem die Unterstützung des Kaufprozesses der Konsumenten von branchenfremden Infomediären übernommen. Neue Technologien, Anwendungen und ein geändertes Konsumentenverhalten werden die Effekte noch verstärken und stellen alle heutigen Marktteilnehmer, sowohl Infomediäre als auch Stationär-, Online- und Multichannel-Händler, zukünftig vor noch größere Herausforderungen.

Keywords: eCommerce, Retailing, Strategy, Multichannel, Value Chain

Section C. Research on Communication

Paper C1.

Naik, P.A., K. Peters, K. Raman. 2008. *Heterogeneous Response Functions in Advertising*. Working Paper. University of Muenster, Germany.

Available at: <http://opus.zbw-kiel.de/volltexte/2008/7459/>

Abstract

De Fleur (1956) provides the earliest evidence of diminishing returns. He finds a common logarithmic pattern for leaflets dropped and message recalled in field experiment. Since then, many researchers have applied logarithmic or square root patterns to capture the effect of diminishing returns with their advertising response modeling across different media. But discussions with managers support the notion that the diminishing returns to incremental dollars spent on one medium (say, television) are not likely to be the same as those for equivalent dollars spent on other media (e.g., Print). But if diminishing returns indeed vary across media, how does that change the resulting allocation recommendation? To address this issue, we derive a dynamic model that captures the notion of differential diminishing returns and disentangles it from closely related notions of differential carryovers and differential ad effectiveness. Second, we develop a systematic method to estimate the model's parameters using market data and illustrate empirically that all three effects, diminishing returns, carry-over and ad effectiveness vary across the four media employed. Finally, we investigate the normative implications for managerial decision-making. Here, we additionally account for varying media buying efficiencies across media. Taken together, the approach and its illustration should provide managers with a better toolkit to allocate their multimedia budgets.

Keywords: Diminishing Returns, Multimedia, Response Functions, Advertising

Paper C2.

Peters, K., H. Frenzen, S. Feld. 2007. Die Optimierung der Öffnungsquote von Direct-Mailings - eine empirische Studie am Beispiel von Finanzdienstleistern. *Zeitschrift für Betriebswirtschaft. Special Issue*. **3/2007** 143-176.

[Optimizing the Opening Rates of Direct Mails - an Empirical Analysis on Financial Services]

Abstract

Numerous textbooks and practitioner-oriented publications on direct marketing contain manifold recommendations and guidelines for designing successful direct mail pieces. With regard to academic work, however, the success factors of direct mail design have only been addressed in a few empirical investigations. In particular, the design of the (outer) envelope has not received much attention in the scholarly work, even though it constitutes a critical success factor. The attractiveness of the envelope influences the probability of the direct mail piece being opened, which is a prerequisite for taking notice of the offer, i.e., the other mailing elements (letter, brochure etc.). Based on a representative sample of 3,000 German households, the present study investigates the effects of various envelope characteristics on direct mail opening behavior in the financial services industry. Analyzing 457 different envelopes, we find that financial service companies are well-advised to use plain direct mail pieces resembling official business letters if maximizing opening behavior is the primary goal.

Zusammenfassung

In zahlreichen Standardwerken und Praktiker-orientierten Publikationen zum Direktmarketing finden sich vielfältige Empfehlungen und Leitfäden für eine erfolgreiche Gestaltung von Direct-Mailings. Gleichzeitig existieren zu dieser Thematik jedoch nur sehr wenige wissenschaftliche und empirisch fundierte Beiträge. Dies gilt insbesondere auch für das Design des Direct-Mailing-Kuverts, welches in besonderem Maße darüber entscheidet, ob der Empfänger den Werbekontakt über das Öffnen des Direct-Mailings aufnimmt oder durch das ungeöffnete Wegwerfen frühzeitig abbricht. Die Öffnung eines Werbebriefes kann somit als notwendige Bedingung für die letztlich intendierte Response angesehen werden. Vor diesem Hintergrund wird im vorliegenden Beitrag auf Basis einer repräsentativen Panel-Stichprobe von 3.000 deutschen Privathaushalten untersucht, wie das Öffnungsverhalten bei Direct-Mailings der Finanzdienstleistungsbranche durch diverse Kuvert-Merkmale beeinflusst wird. Aus der Analyse von insgesamt 457 unterschiedlich gestalteten Kuverts lässt sich für direktwerbende Finanzdienstleistungsunternehmen ableiten, dass eine schlichte bzw. der offiziellen Geschäftspost ähnliche Kuvertgestaltung verwendet werden sollte, wenn möglichst hohe Öffnungsquoten im Rahmen von Direct-Mailing-Kampagnen angestrebt werden.

Keywords: Direct Marketing, Optimization, Direct Mailing